REMARKS FOR ADMINISTRATOR BOLDEN

United Nations Academic Impact

International Day of Human Space Flight

April 12, 2012

Thank you, Maher Nasser for that gracious introduction and for the invitation to participate in this important day of commemoration. I also want to thank the President of the UN General Assembly, His Excellency, Mr. Nassir Abdulaziz Al-Nasser for his leadership and support of our efforts.

Thank you also to Mr. Sergey Saveliev for the long and rewarding partnership between NASA and Roscosmos.

I am extremely honored that I was invited to speak with you on this second annual United Nations International Day of Human Space Flight.

As most of you know, NASA has a long history of international cooperation, across a wide variety of space activities. In fact, "cooperation with other nations and groups of nations" in the peaceful exploration of space was envisioned as a key element in the legislation that created NASA back in 1958. While we are proud of NASA's global leadership, we are also mindful that the scientific and human space flight achievements of the past half century would not have been possible without international cooperation.

Fifty-one years ago today, it was a Russian, Yuri Gagarin, who became the first human to orbit the Earth. NASA's Alan Shepard followed him a month later. America's historic 1969 moon landing was the result of the collective contributions of generations of astronomers and scientists – from Galileo to the brilliant German rocket scientist, Werner Von Braun, who designed the Saturn V rocket that made that first moon landing possible.

There is something intrinsically unifying about humankind's exploration of the heavens. Beyond the scientific and economic benefits of launching into space – of literally leaving this planet – I can tell you that when viewed from orbit, our borderless Earth inspires a sense of humility, unity of humanity, and wonder. As the great British astronomer Sir Fred Hoyle said in 1948, "Once a photograph of the Earth, taken from outside, is available, a new idea as powerful as any in history will be let loose." How true.

I firmly believe that the original picture of our "blue planet" from the vantage point of the Apollo 8 crew returning to Earth from their trip around the moon forever changed humanity's perspective on our planet and was very possibly the origin of the modern-day environmental movement.

President Obama has also made space exploration a key element of America's commitment to building a more peaceful world. In his speech at the Kennedy Space Center two years ago, he said, "No longer are we racing against an adversary; in fact, what was once a global competition has long since become a global collaboration."

That is why we vigorously support the goals of the United Nations and its various space-related entities.

These U.N. organizations include the Office for Outer Space Affairs, the Committee on the Peaceful Uses of Outer Space, and this organization, Academic Impact, that recognizes that institutions of higher education around the globe have an essential role to play in economic, social, and technological development – the foundations of world peace.

I believe that the success of our modern space programs will be judged, in part, on how well we continue to make space exploration about global partnership. Particularly since it is clear that no one nation can do it alone and the benefits to be gained are for all of humanity.

With NASA's long history of successful international cooperation, and more and more nations reliant on space-based capabilities to support their day-to-day lives, I have every reason to believe that we will continue to build strong relationships around the world and create a unified effort for expanding humanity’s horizons beyond our planet.

Whether that means sending astronauts to orbit, designing experiments, supplying crucial parts on one of our new observatories, or being a researcher who analyzes data from our spacecraft, there can be a role in exploration for everyone who wants to participate.

The period in which we now live represents a once-in-a-generation shift from a flagship program, the space shuttle, to a new way of doing things – a new paradigm, and a new set of priorities.

What does this mean for the future? NASA is in the future business and that means shaping tomorrow and helping us to reach our higher potential as human beings.

It is a very exciting time to be involved in space exploration. The retirement of the space shuttle last July after 30 incredible years of flight represented a bittersweet time for NASA, but the next great era of space exploration is quickly taking shape. In fact, our most recent call for astronauts drew more than 6300 applications, the second highest we have ever had. Some from this group will become the NASA Astronaut Class of 2013.

They are going to be the ones who will pioneer new ways of reaching space on commercial vehicles and possibly travel to an asteroid and lead the way for those who will go to Mars in the 2030s.

In addition to all the science and research on human health that has been and continues to be conducted on the International Space Station (ISS), perhaps its most profound historic achievement is how it continues to demonstrate that many nations can work together on a project of enormous scope, complete it, and then keep it going. Fifteen nations contributed to the development and assembly of the International Space Station and even more are or will soon become involved in the program through their utilization of this amazing research facility on-orbit.

The ISS represents our toehold to the rest of the solar system. What we learn there is going to make it possible for us to venture farther. It will help us become a truly spacefaring people.

Already, we have had people continuously on-orbit each and every day for more than 11 years. Just the thought of this would have been science fiction when I was a child.

Not only is the ISS the largest, most complex international scientific and engineering program in history, it is a test bed for future technologies and systems and is a tangible symbol of unprecedented international cooperation. Just take a look outside on a clear evening and you might see a very bright shining star moving swiftly overhead. That is the International Space Station – the temporary home for international crews living and working in space.

The International Space Station is also a world-class laboratory in which full-time research is conducted.

Now that its construction is completed, we expect many more partnerships in the future with academia, industry, other U.S. agencies, and as I mentioned earlier, other countries, to help bring it to its full potential and fully utilize this incredible investment.

Within the next month or two, we expect that a private company, SpaceX of Hawthorne, CA, will launch and berth an uncrewed cargo vehicle to the Station, demonstrating a new capability -- the first time a commercial entity will have done this. Later this year, Orbital Sciences Corporation, another commercial entity is planning to conduct its first demonstration mission of a similar cargo resupply capability. By 2017, we at NASA are planning to rely on American companies for crew transportation and rescue services for low-Earth orbit activities. NASA is currently working with the private sector to incentivize companies to build and operate safe, reliable, and cost-effective commercial human space transportation systems.

Initially, NASA plans to be a partner with U.S. industry, providing technical and other assistance during the development phase. In the longer term, NASA plans to be a customer for these services, procuring transportation services for U.S. and U.S.-designated astronauts to the space station.

These are just a few of the many milestones on our path to opening that new sector of the economy that we think will be a job creating engine for generations to come. This reliance on industry will change our relationship with space and make it much more a part of everyone's daily life.

The economic benefits of exploration are one of the reasons that it will be a key component of our future. As I have said before, every dollar we spend on space exploration is spent right here on Earth. It represents good jobs and innovation and pushes the envelope of our capabilities.

Our new Space Technology Program currently involves more than 1000 projects. It is generating the ideas and innovations that will take us all farther. Ideas such as solar-electric propulsion and lightweight cryogenic propellant tanks are things to which we have recently directed our resources, just to name a few. We are targeting a launch of a cryogenic propellant storage demo in 2016.

Our current budget provides for this type of work and projects like the three technology demonstration mission proposals we selected this past year to transform space laser communications, deep space navigation using atomic clocks, and in-space propulsion capabilities, including solar sails.

In aeronautics, our investments are driving technology breakthroughs for cleaner, safer, quieter, and more efficient aircraft.

In fact, NASA has recently supported three industry/academia teams to explore new vehicle concepts that could achieve those goals and enter into service in 2025 (two generations after the current state-of-the-art aircraft). The teams created technology development roadmaps and identified critical technology demonstrations necessary to make those aircraft a reality.

The results of these studies, released in January 2012, are helping NASA and the non-governmental sector prioritize research investments to make that future a reality.

Space-related science is an area that has always been characterized by a great deal of international cooperation, and is one in which we are continuing to expand our partnerships, both as a leader and as a contributor to partner-led initiatives.

Who could have guessed that, by 2012, we would have documented hundreds of extra-solar planets, learned about some of their characteristics, and started to identify some that might be Earth-like?

With the James Webb Space Telescope, we will be looking at light from near the beginning of the universe. It doesn't get much bigger than that when you contemplate the larger implications of our work.

We are going to keep trying to answer questions that continue to fascinate humanity. Is there life on Mars -- or elsewhere in our universe for that matter? The *Curiosity* rover landing on the Red Planet in August may shed some light on whether or not Mars may once have been hospitable to life or may even be so today. This mission is a precursor to NASA's plan to send humans to the Red Planet in two decades.

What is it like in interstellar space? The *Voyager* spacecraft that have been travelling across space for more than 30 years could break out of our solar system within our lifetimes.

The activities of U.N. Academic Impact, of course, are grounded in education, and we're right there with you, focusing on programs with uniquely valuable returns. This will help us feed that pipeline we so urgently need of new scientists and engineers to share their energies, passions, and great intelligence with us. Last year we also provided 80 space technology research fellowships to graduate students to complete their studies and join us in tomorrow's missions.

You know, we can develop all the technology we want, but in the final analysis, all of this is about people.

It’s about making life better here on Earth; about improving the human condition; expanding our knowledge; and expanding our partnerships across Earth in pursuit of a larger goal that none of us could accomplish on our own.

We have numerous demonstrations of this right now, from the International Space Station, to the SERVIR program, where scientists around the world use space data and their own ground-based observations to help us better understand the increasing demands upon our planet’s resources as well as to predict Earth's accompanying changes.

Everywhere I go, I see the fire in the eyes of students who are just learning how important science, technology, engineering and mathematics are to understanding our world, and how they can make a real difference by pursuing those career paths. So, the future to me looks bright.

We look forward to continuing our leadership in space exploration in the global community, building on the strong relationships we have now and engaging with more “non-traditional” partners. These are the countries with whom we haven’t worked a lot in the past, or maybe not at all. In some cases they may not even have their own space programs.

At the end of the day, it is people from around the world sitting across the table from one another who must decide if together we can bring a complex mission of exploration of our universe to successful completion.

I saw potential of this cooperation firsthand when I commanded NASA’s first “mission to planet Earth”, ATLAS-1, with Belgium’s first-ever astronaut, Dirk Frimout. We had a complement of 13 international experiments to study our Sun and Earth’s middle atmosphere in ways never before accomplished.

It was displayed again two years later when I was privileged to command the first joint Russian-American Space Shuttle mission with a Russian Cosmonaut, my friend Sergei Krikalev, as one of our Mission Specialist crewmembers.

The relationships we developed on those missions and others served as precursors to our extremely successful cooperation on the Russian Space Station, Mir, and ultimately on the International Space Station.

Since NASA was founded 52 years ago, international cooperation has been one of our cornerstones. We have entered into about 4000 agreements in that time, with more than 120 nations, and touching almost every aspect of NASA's activities. Right now NASA has 535 active international agreements, conducting some form of ground-based or space-based research linked to every continent and working with nations around the world to develop and implement the next generation of space exploration missions.

This cooperation is the definition of win/win, bringing multiple benefits to everyone involved.

I am truly proud that NASA's work stretches far beyond America's borders and has a positive impact on people's lives in places far from our shores. I believe that space exploration is good for the world, and I see America continuing to lead global exploration efforts. Government-to-government relationships that might otherwise be difficult continue to improve, using common interests in science and technology as a basis for common understanding and agreement.

Just last month, I was with my fellow heads of several space agencies in Quebec City, Canada, talking about our progress and our challenges and what we want to do together in the coming decades.

There are a lot of frontiers within the broad scope of space exploration, and as such, there is likely something exciting going on right now in some part of the world that may someday help us to further humanity's understanding of those frontiers. Because we all inherently share a need to explore, I firmly believe that individuals and nations will continue to be drawn together by the promise of space exploration.

I want to leave you with one final thought: America stands ready to lead this next era of space exploration, and welcomes the support and participation of our international partners in achieving these ambitious goals.

NASA's vision is to reach for new heights and reveal the unknown, so that what we do and learn will benefit all humankind.

Space exploration strengthens us all, not only with the new discoveries we make, but with the numerous technologies that are developed with applications directed toward improving life on Earth. Besides that, it brings us together as one world.

Thank you so much for allowing me to join you today to participate in this International Day of Human Space Flight symposium. I look forward to hearing your thoughts and ideas about how the frontiers of our ever-changing world may develop in the coming years.